

# Using FIA Data to Characterize the Condition of Whitebark Pine in Montana

## First Year Progress Report

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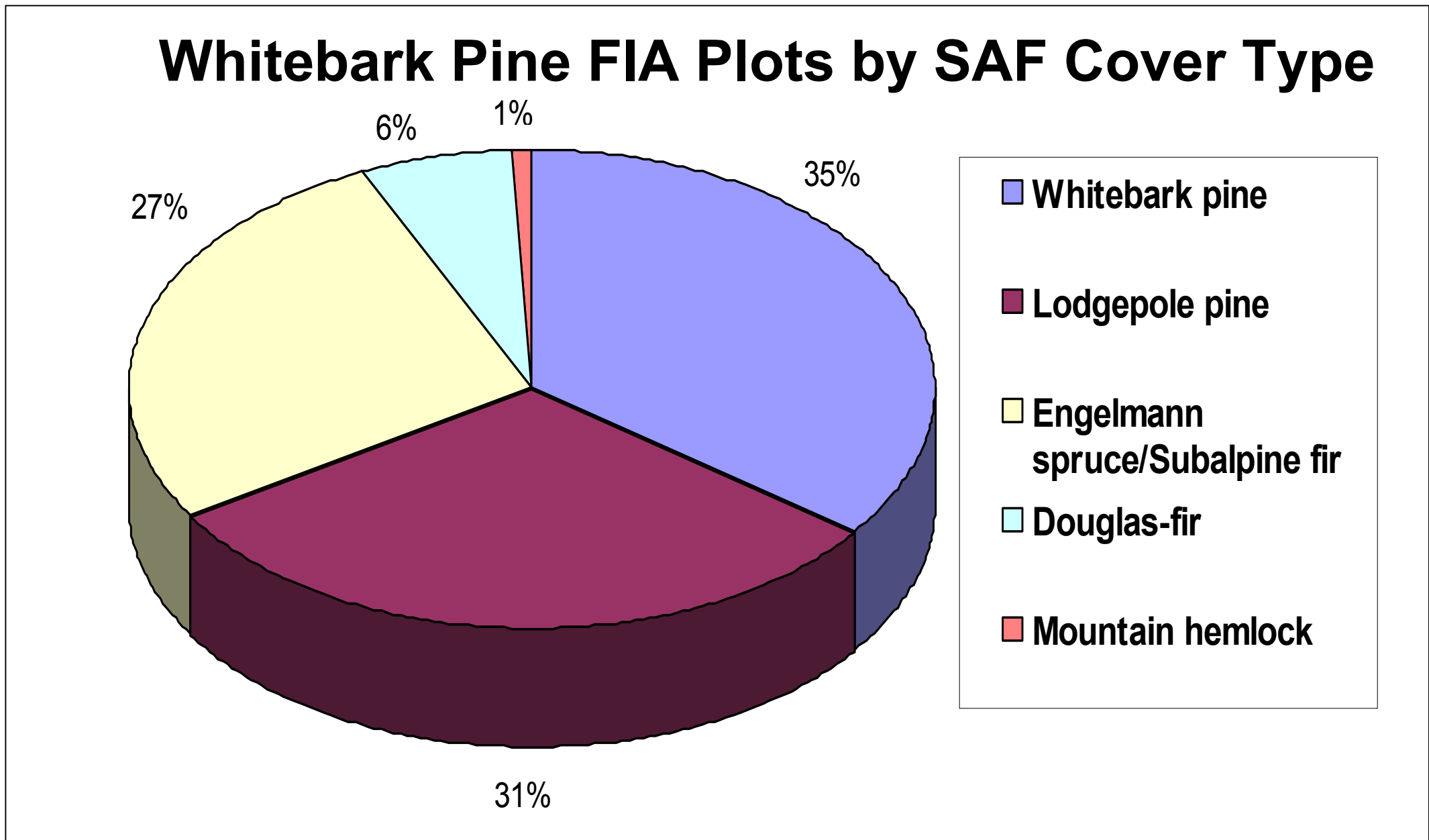
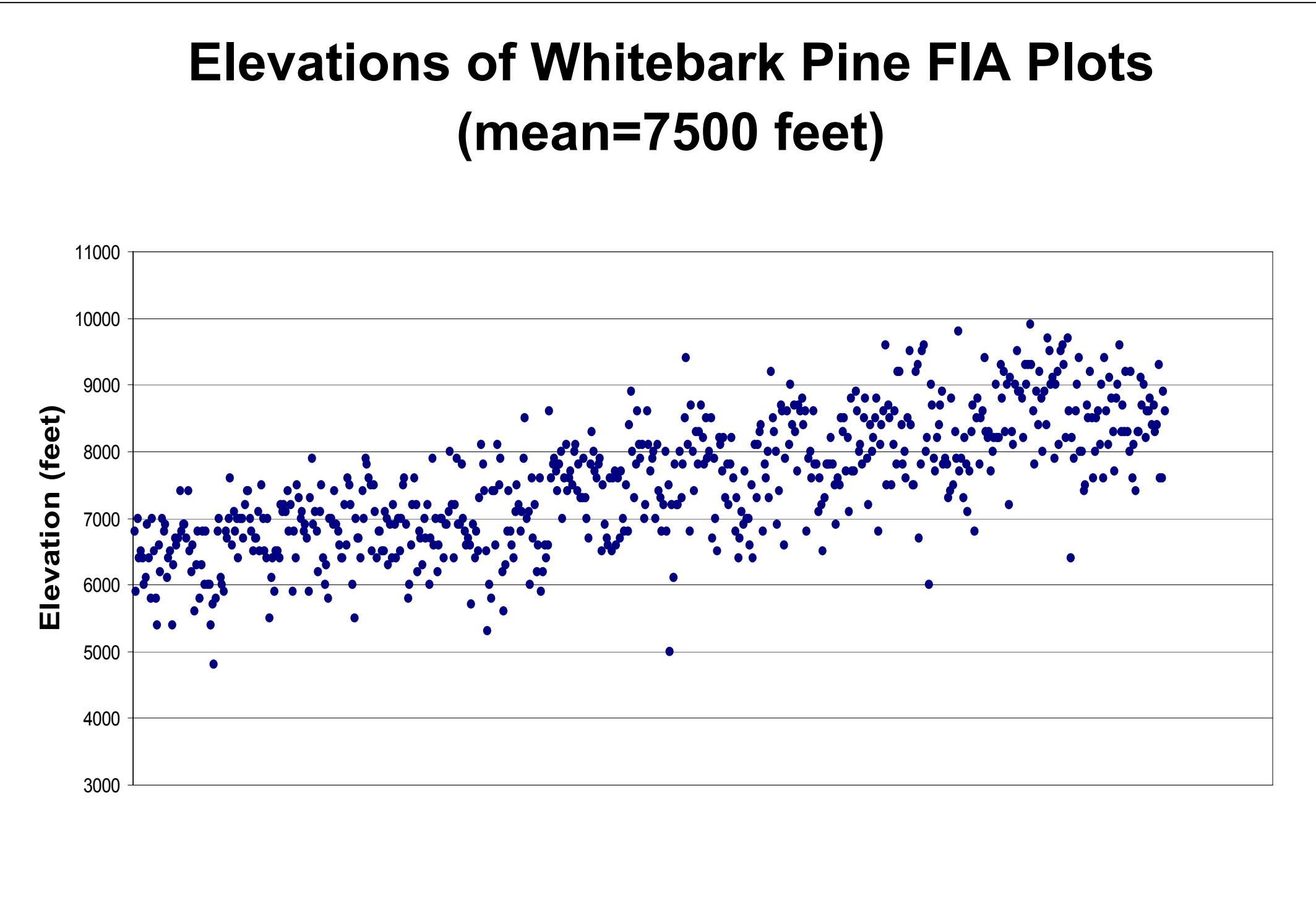
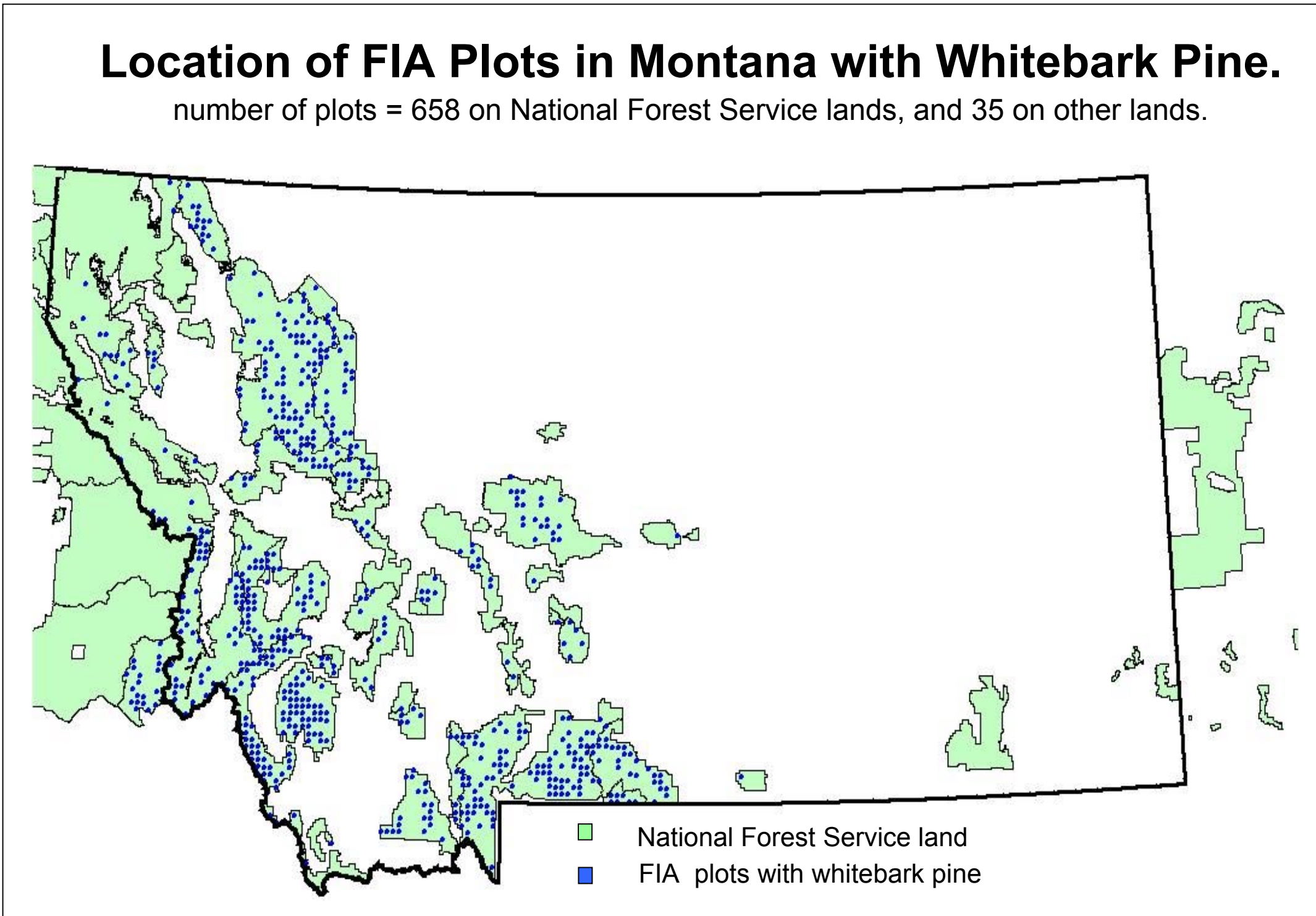
### INTRODUCTION

Whitebark pine (*Pinus albicaulis*) is a keystone species of high elevation forests that has significant values for wildlife, watershed protection, and aesthetics. Throughout much of its range, whitebark pine has experienced tremendous change over the past century from the affects of fire exclusion, mountain pine beetle (*Dendroctonus ponderosae*) and blister rust (*Cronartium ribicola*). Localized surveys have been conducted in Montana that give us a glimpse of the whitebark condition for those locations. However, a comprehensive characterization of the whitebark condition across the state is lacking. We initiated a FHM evaluation monitoring project with the objective of using FIA plot data to complete this statewide characterization.

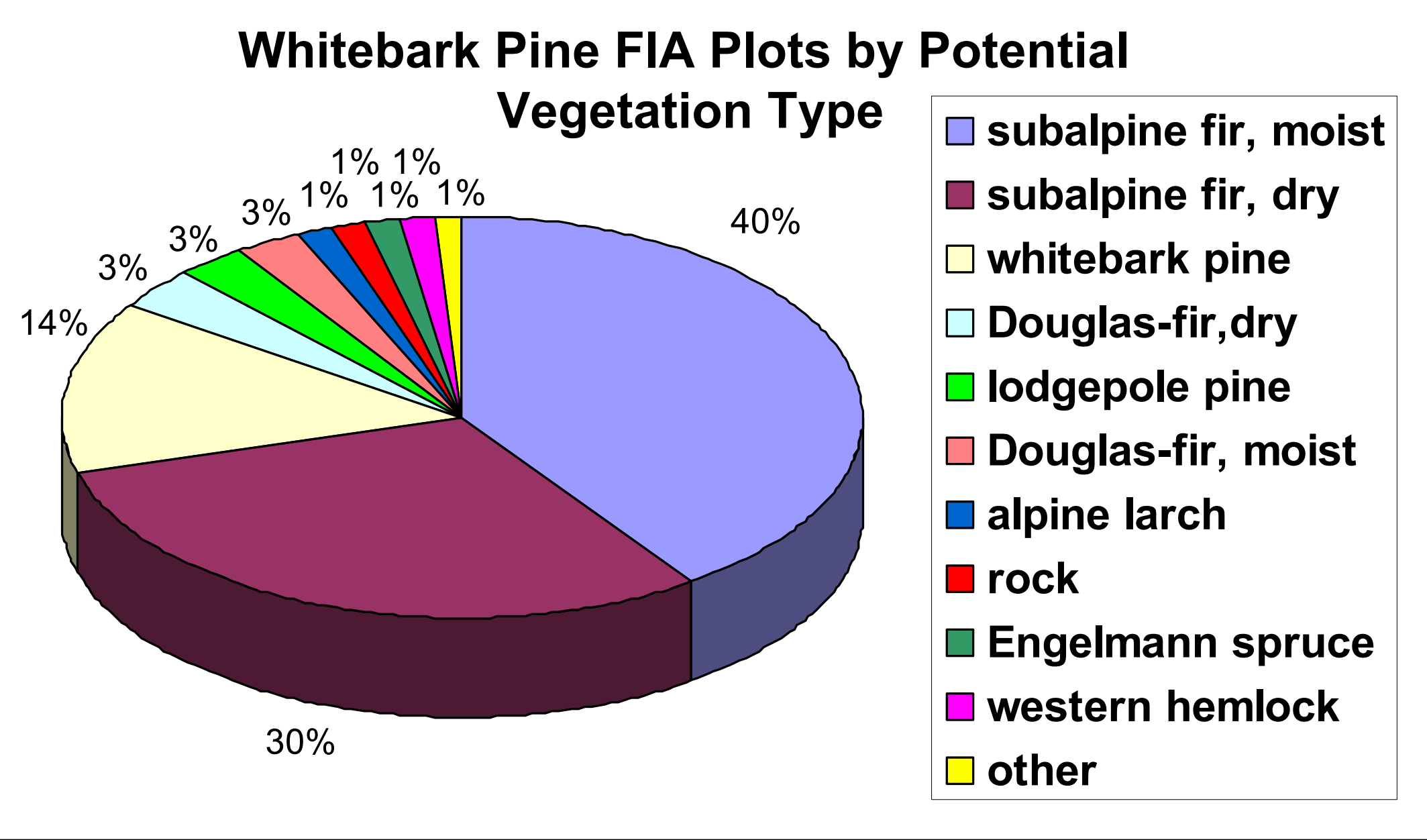
### METHODS

FIA data collected in Montana from 1994 to 1998 were summarized using DESCRIBE (Chew 1993), Excel, Access, and Arcview.

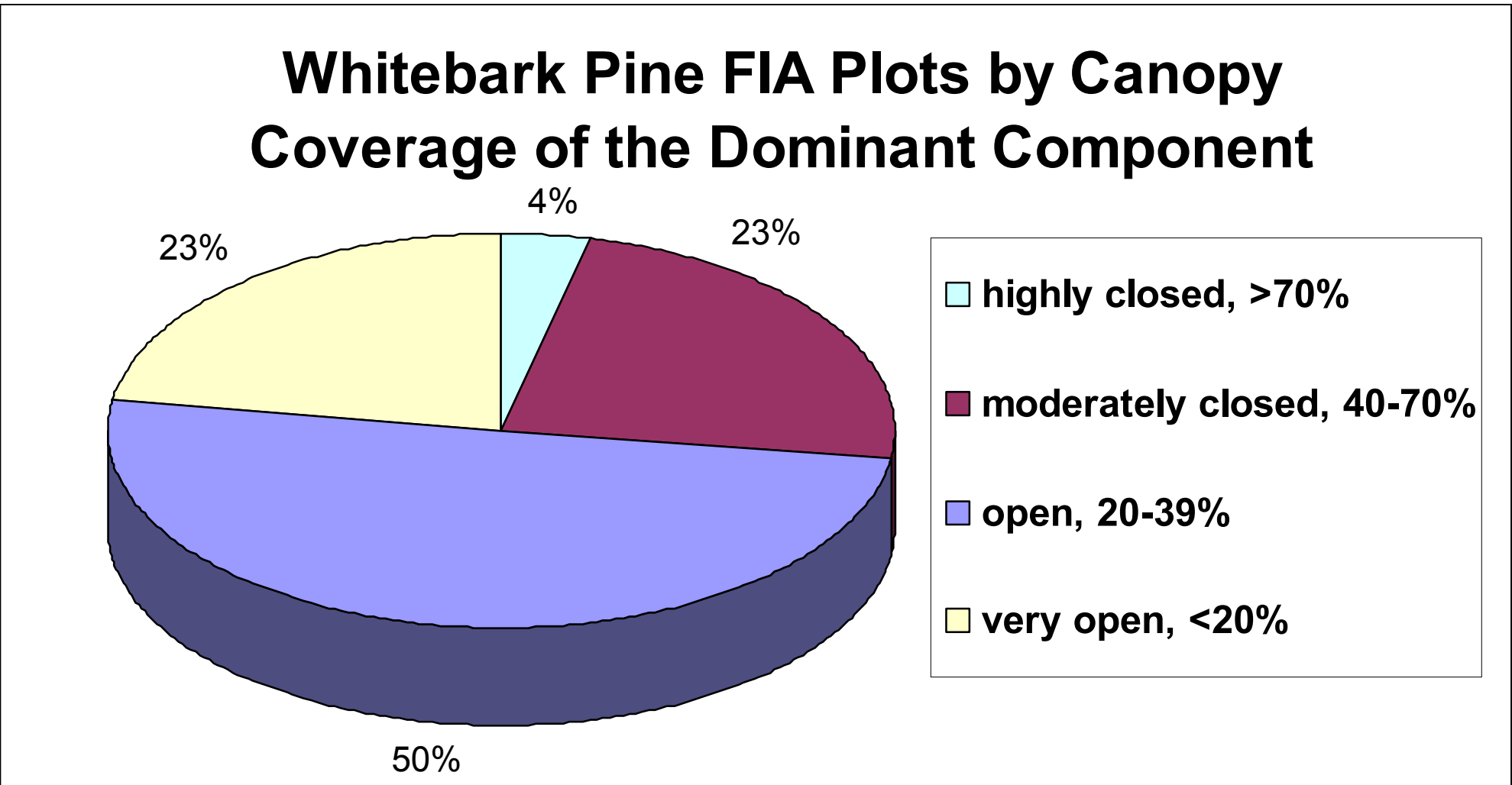
### RESULTS



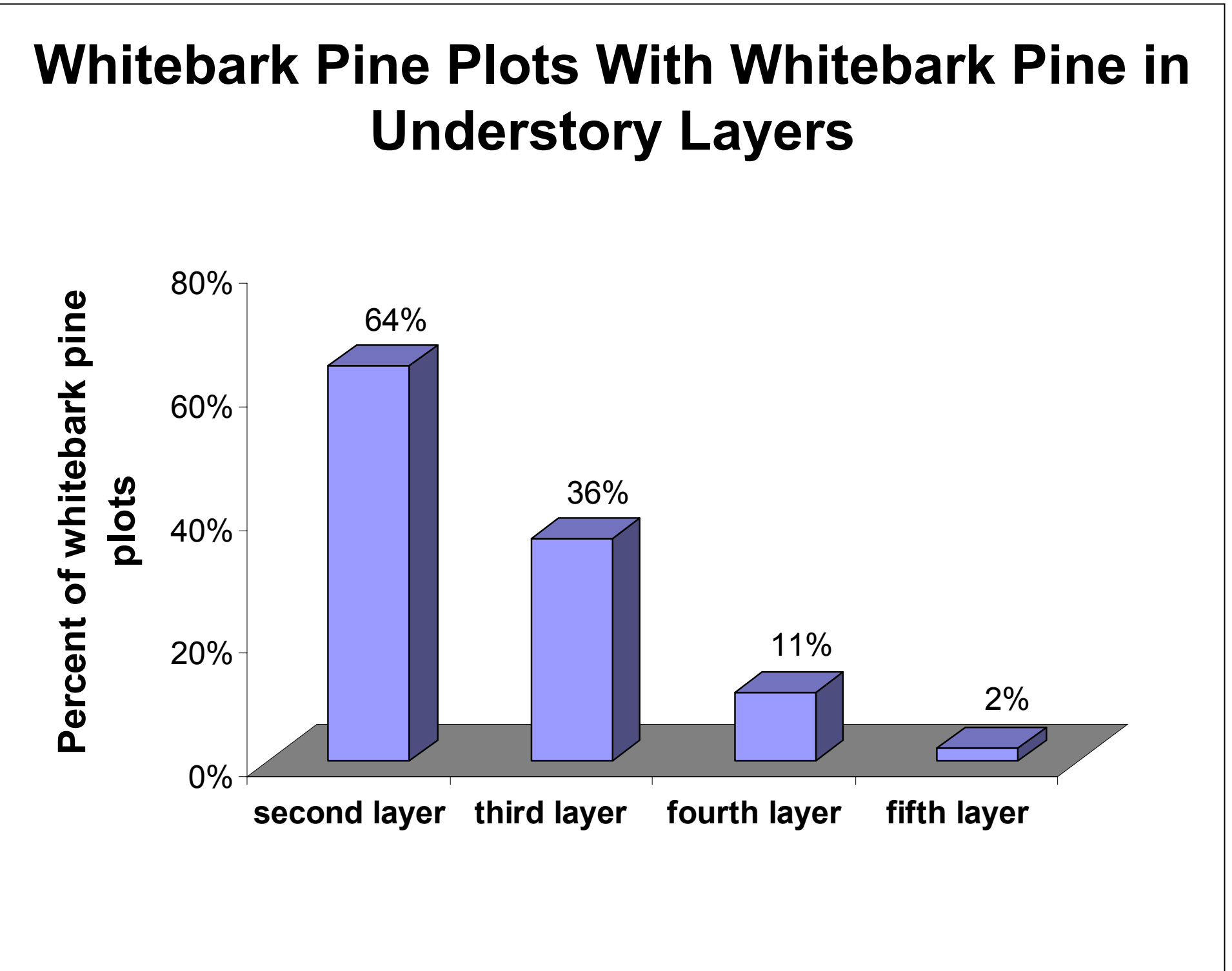
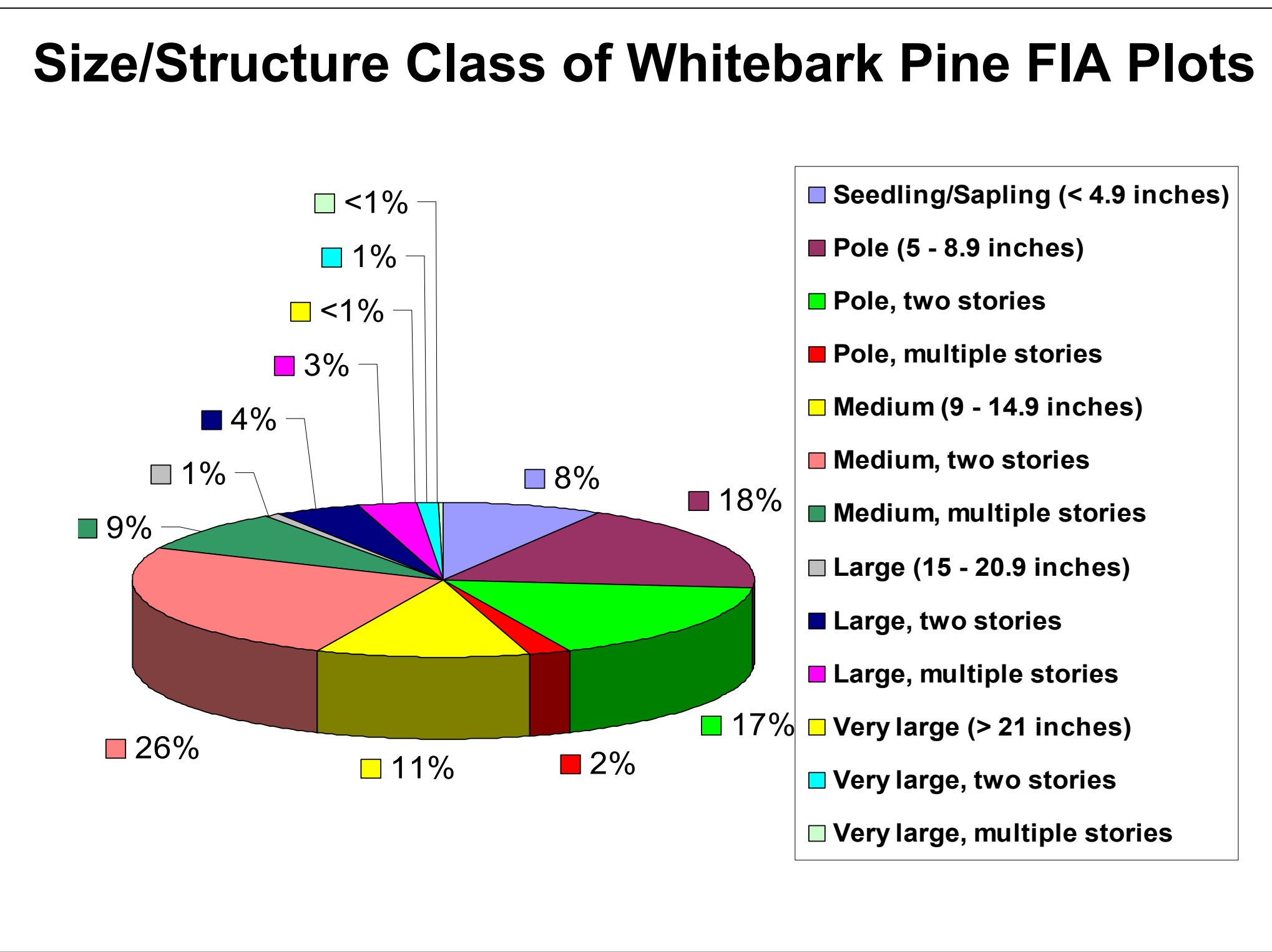
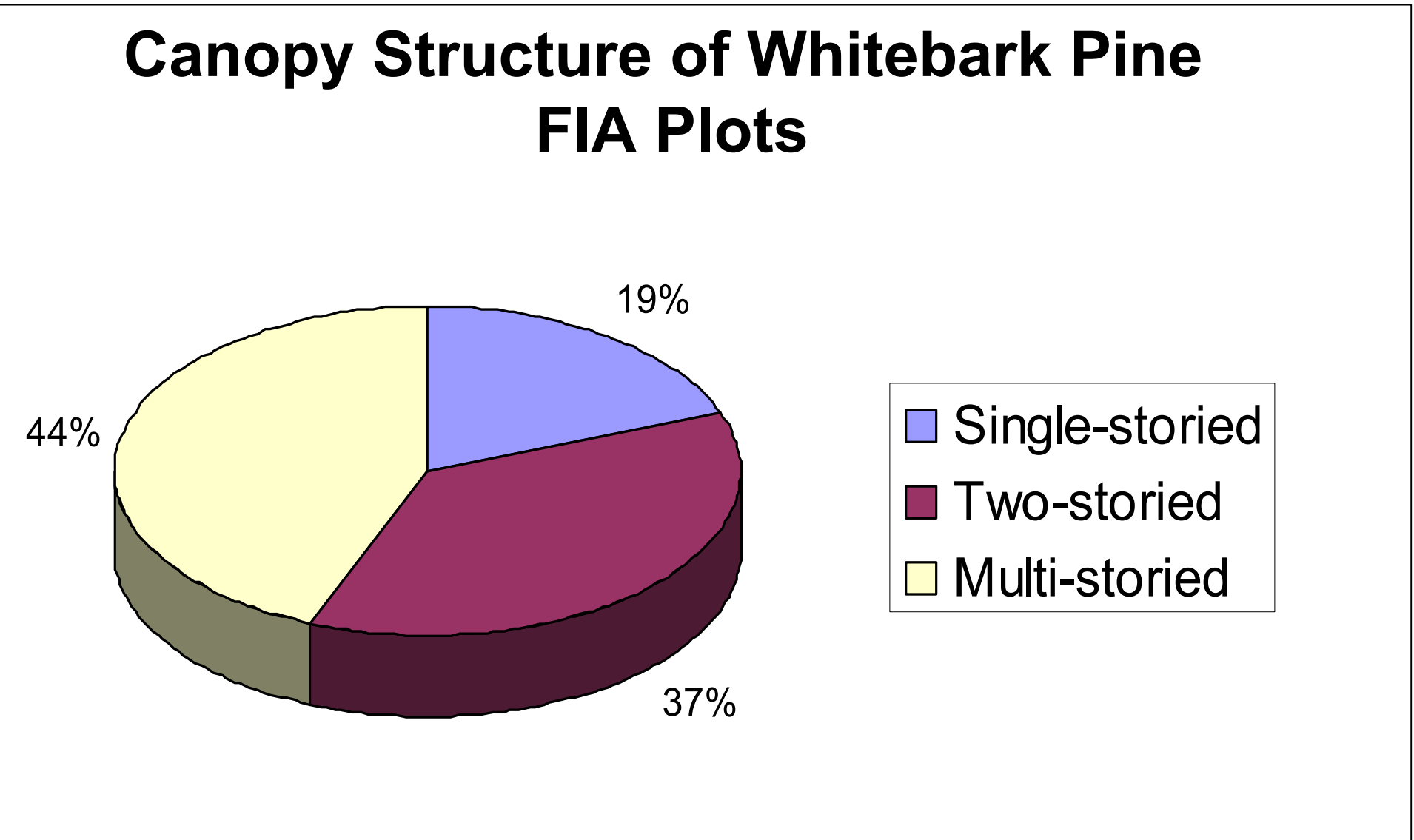
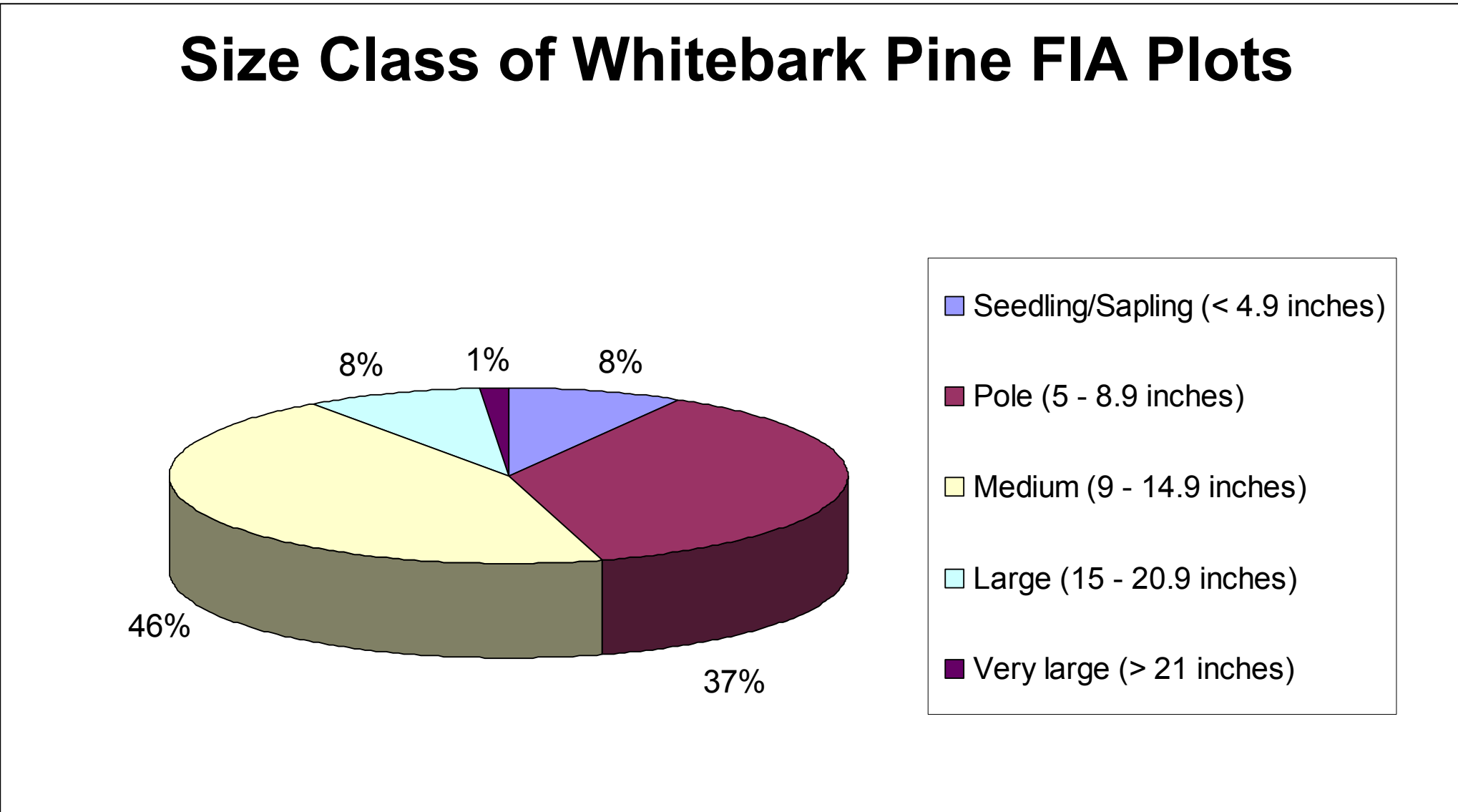
It is encouraging that about one- third of stands can be classified as having a whitebark cover type.



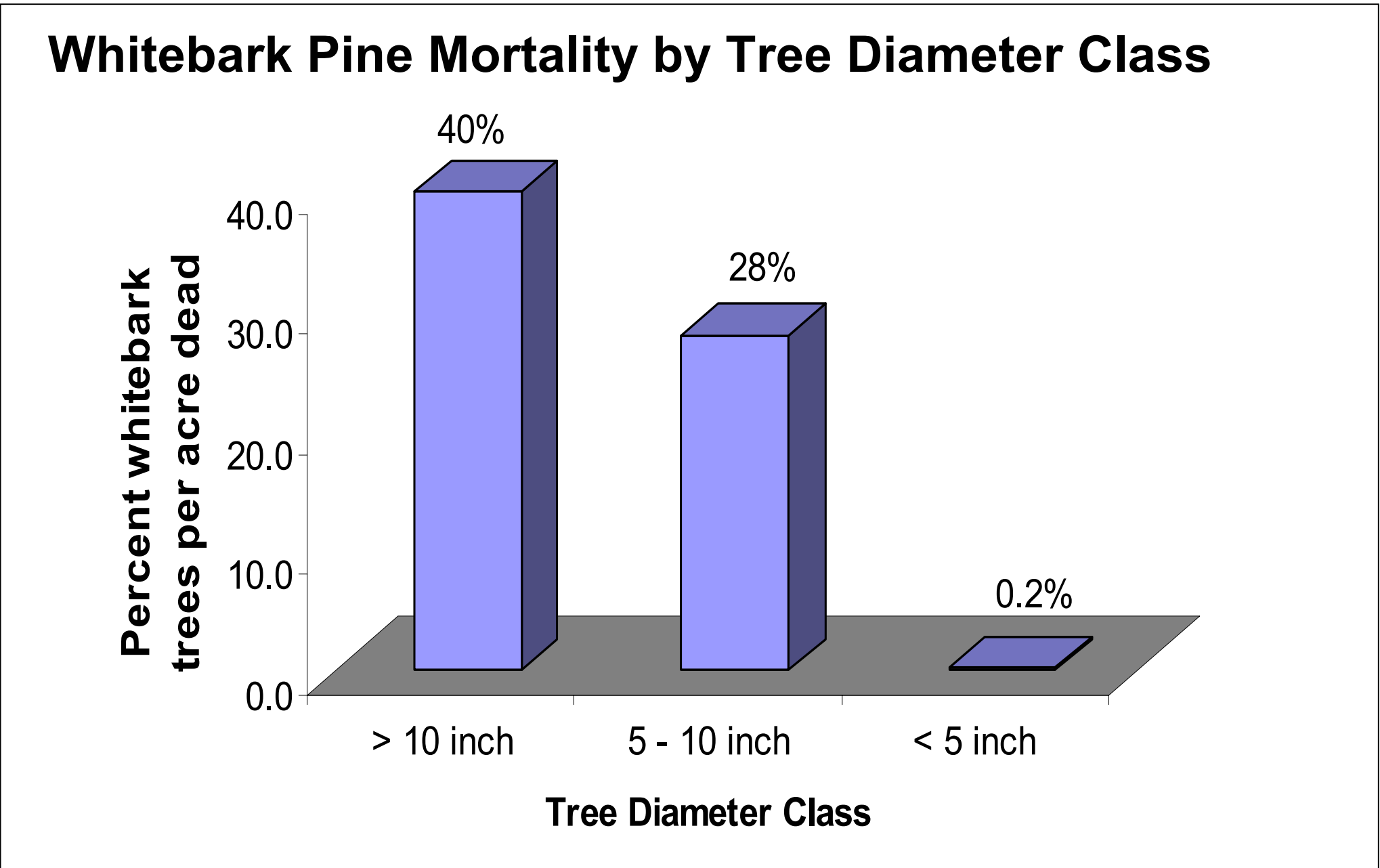
With lack of fire and no management, most of the stands will convert to subalpine fir.



Even though most of the stands have open canopies, this does not necessarily mean that whitebark pine will successfully regenerate



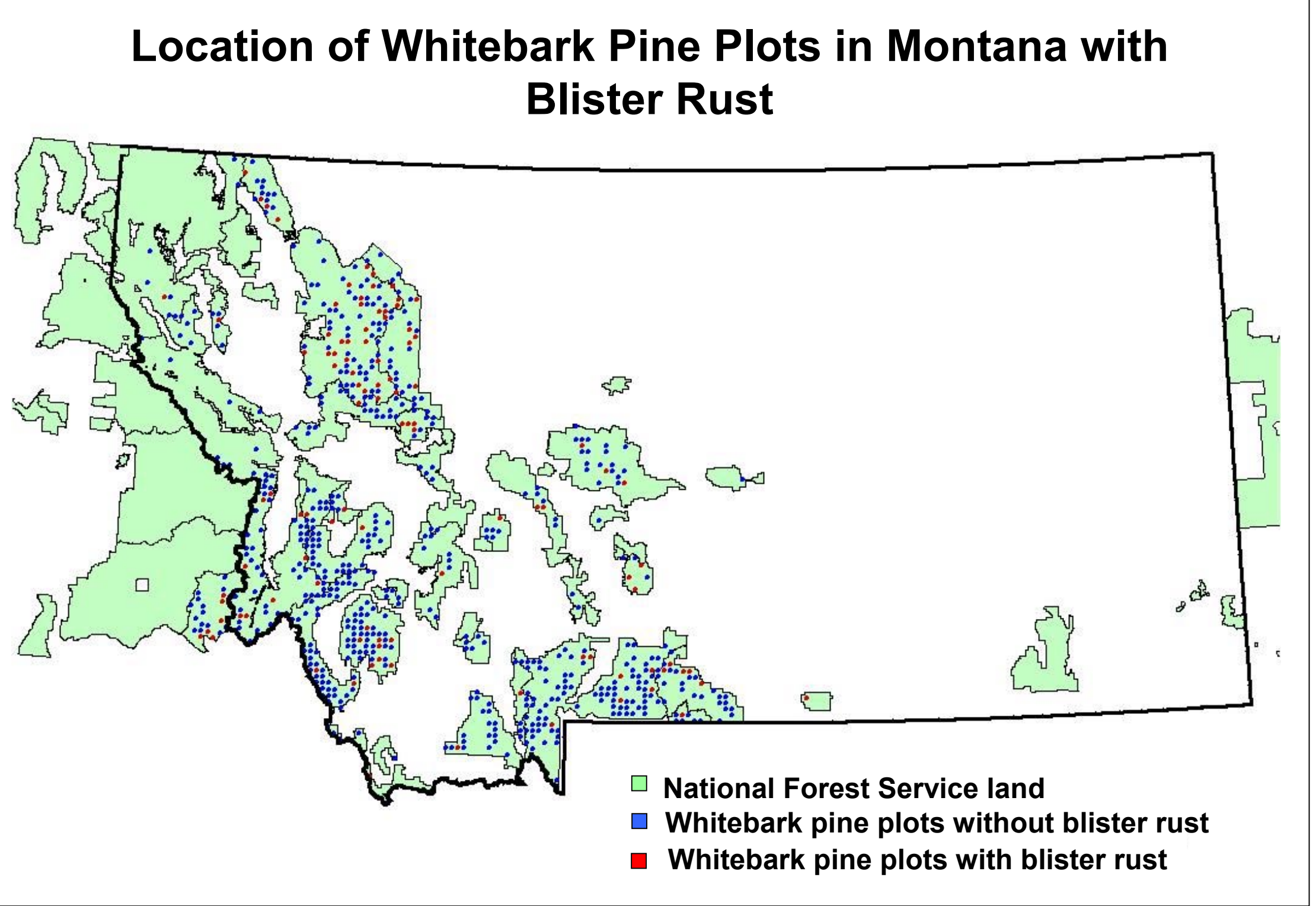
Although a majority of the whitebark pine stands are open, and multi-storied, there is very little whitebark present in the understory layers. Much of the whitebark pine is pole or larger, which also indicates that little whitebark regeneration is occurring.



Mortality in the large diameter class was likely caused by mountain pine beetle and perhaps blister rust. Blister rust is more likely to be the cause of mortality in the medium diameter class. Mortality in the small diameter class could be the result of many things, including rust or competition. The high amount of mortality occurring in the whitebark pine trees >5 inches means a great deal of cone production has already been lost.

### What's Next?

- Groundwork to obtain better blister rust information
- Attempt to rate stands for mountain pine beetle hazard
- Publish final report



Blister rust was recorded on 104 plots, 16% of the whitebark pine FIA plots. Our hypothesis is that blister rust was not adequately recorded, and we plan to visit a sub-sample of the whitebark pine plots to gather better rust data.

### References

Chew, J.D.. 1993. An expert system for diagnosis of stand treatment needs. AI Applications 7(4): 1-11.